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EXAMINER

VU, TUAN A

ART UNIT	PAPER NUMBER
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2193

DATE MAILED: 11/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/733,789	Applicant(s) YUNT ET AL.	
	Examiner Tuan A. Vu	Art Unit 2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-83 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-83 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to the application filed 12/10/2003.

Claims 1-83 have been submitted for examination.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 6, 44, 78, 82 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 48 of copending Application No.

11,025,218 (hereinafter ‘218). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following observations.

Specifically, as per **instant claims 6, 44**, ‘218 claim 48 also recites a graphical model for a debugging method comprising a model view and an execution list displaying information from the execution of the entities of the model (*entities from a plurality of execution domains*), the model view interfacing with a debugger (each object of the model entities *including an interface*

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for the corresponding execution domains); informing the debugger with a current executing method, i.e. indicating the type of method executing in said model. However, '218 claim 48 does not recite execution order of methods called during 'the time step of said model'; and 'indicating visually the state of the execution list'. For one skill in the art, a debugger as by '218 for indicating state of execution (e.g. see '218: *...list view of displaying information from the execution of the entities*) of any step -- or method called -- associated with an execution list would have been an obvious feature found in any debugger according to well-known practice. Hence, it would have been obvious for one skill in the art to set up '218 debugger so that the execution information visually displayed would show the state of each of the execution entities -- of such list/sequence -- being called during a debugger session in which a step at a time is executed--as in a time step of a model object implemented via a execution method or domain; because only via a step based on a time setting by the user can a debugger display the changes to the execution instances (of a model object via method execution state) as purported by '218 debugger or any debugger in general according to the above well-known concept.

Instant **claims 78, 82** also recites the limitations of instant claims 6 along with the indicator of a currently executing method; hence would be conflicting with '218 claim 48 for the same obvious rationale as set forth above.

4. Claims 1, 39, 77 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 10, 34 of copending Application No. 10,733,788 (hereinafter '788). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following observations.

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As per **instant claim 1**, '788 claim 10 recites a graphical debugger with a model view, said debugger having debug information on the order of execution of a plurality of methods that are executed during execution of the model; one of said methods belonging to one instance of an *execution list* (see '788 claim 10). However, said claim 10 does not recite *execution list view* nor does claim 10 recite *method calls during execution of a time step* of said model, and *displaying the state of execution*. In view of the rationale that a debugger being well-known to display state information on execution as well as allowing the user to see proper time settings or proper execution, the above time step execution which is suggested in claim 10 via output to the user (e.g. *start time, stop time, user to determine proper ...operation*) would have been obvious because of the rationale as set forth above, rendering the state of execution being displayed inherent to such rationale. Thus, as a whole instant claim 1 is an obvious variation of '788 claim 10.

Instant **claims 39 and 77** are also conflicting with '788 claim 10, or claim 34 for the same reasons as set forth just above.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Objections

5. Claims 35, 73 are objected to because of the following informalities: the term 'representive' is not proper typographical representation of the intended semantic.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

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Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 77-83 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Specifically, claim 77 recites a system comprising a debugger in a graphical design environment, a model view and an execution list view generated by said debugger. According to the Specifications, the debugger is a tool as a standard computer software-implemented debugger; and the model view or list view are inside this debugger environment. However, the system lacks the recital of hardware embodiment to support what is construed as software components in light of the above. Any functionality pertinent to the *debugger* as well as the *views* as recited above cannot be construed as able to generate real-world results, absent reasonable teaching that the system is operating with a computer or a tangible execution engine/device so to actualize such functionality.

The Federal Circuit has recently applied the practical application test in determining whether the claimed subject matter is statutory under 35 U.S.C. § 101. The practical application test requires that a “useful, concrete, and tangible result” be accomplished. An “abstract idea” when practically applied is eligible for a patent. As a consequence, an invention, which is eligible for patenting under 35 U.S.C. § 101, is in the “useful arts” when it is a machine, manufacture, process or composition of matter, which produces a concrete, tangible, and useful result. The test for practical application is thus to determine whether the claimed invention produces a “useful, concrete and tangible result”.

Software entities being recited without hardware embodiment to support software functionality will not be construed as being able to yield a concrete, tangible result in terms of real-world useful application output. The claim for reciting mere software-based entities amounts to a non-practical subject matter is rejected as non-statutory in light of the above Practical Application Test requirement.

Claims 78-83 do not appear any hardware support to the deficiency of the base claim, hence are also rejected for leading to a non-statutory subject matter.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-83 are rejected under 35 U.S.C. 102(b) as being anticipated by *the Mathworks*, ‘Simulink: Model-based and System-based Design’, *Using Simulink*, Version 5, copyright 1990-2002, last printed July 2002, ch. 2-11, 13-14; url:

<http://aer.ual.es/docencia_es/iai/archivos/simulink.pdf> (hereinafter Simulink5)

As per claim 1, Simulink5 discloses a method in a graphical modeling and execution environment, the method comprising the steps of:

providing a model view and an execution list view of a model being executed (ch. 2: pg. 2-10→2-24; ch.13: pg. 13-17→13-19), said model view showing a plurality of components of said model, said execution list view showing an execution list depicting the execution order of methods called (e.g. *Time Step*, *Math Function block*, *Sum block*, *Product block* - pg. 2-10,11; 2-19,20; ch. 5: pg. 5-16→5-17) during the execution of a time step (e.g. ch. 10: pg. 10-40) of said model, said model view interfaced with a debugger; and

indicating visually the state of the execution list (e.g. ch. 5: pg. 5-16→5-24; ch. 13: pg. 13-20—13-26) on said model view.

As per claims 2-3, Simulink5 discloses displaying a visual indicator indicating an association between an executing block method and a calling block on said model view (pg. 2-19—2-20, pg. 2-31; pg. 14-24); indicator indicating an association between a currently executing system method and a subsystem block owner (pg. 2-22,23; pg. 2-32; pg. 14-24,25) of said currently executing system method on said model view.

As per claim 4, Simulink5 discloses creating a visual representation of a model component not previously displayed in said model view, said model component calling a method; and displaying a visual indicator indicating an association between the visual representation of the model component not previously displayed and the method called by the model component (*refine output* – pg. 2-17; ch. 10: pg. 10-14→10-20).

As per claim 5, Simulink5 discloses extending a visual indicator from an originating point to a first called method depicted in said model view; and extending sequentially said visual indicator to at least one of each subsequently called method depicted in said model view and a virtual subsystem in said model view during a time step in said execution (*propagating, link...nonstructural* - pg. 5-28).

As per claims 6-7, Simulink5 discloses indicating the type of method executing in said model view; as a visual indication (ch. 14: pg. 14-24,25).

As per claim 8, Simulink5 discloses visual indication is made by one of altering the color of a portion of a model component in said model view representing said method (see pg. 4-5-→4-17; pg. 5-15) and inserting a geometric design (pg. 4-17-4-21, 4-36 – Note: subsystem of sinusoidal functions or entering a diagram representing a circuit for annotating input **reads on** geometric design) in a model component displayed in said model view.

As per claims 9-10, see visible breakpoints in said model view and conditional breakpoints (e.g. ch. 13: *conditional breakpoints* - pg. 13-12 → 13-15; ch. 13: pg. 13-24).

As per claim 11, Simulink5 discloses arranging said execution list view to show the methods executed in a current time step in the execution of said model in a tree structure (tree – ch. 5: pg. 5-18→5-33).

As per claims 12-13, Simulink5 discloses that a user sets visible breakpoints in said execution list view; wherein said breakpoints are conditional breakpoints (see claim 9-10; pg. 13-24).

As per claim 14, Simulink5 discloses setting at least one a trace point and a display point in at least one of said model view and said execution list view (see pg. 13-14-→ 13-26).

As per claims 15-16, Simulink5 discloses generating at least one of debugging data and profiling data (ch. 14: pg. 14-21) during the execution of said model;

associating said at least one of debugging data and profiling data with at least one of said components of said model; and

visually indicating said associated data in said model view (Profile Summary: pg. 14-21→14-27);

wherein said associated data includes solver data (Note: using profile to support data solving with accelerator reads on solver data being associated with model components under profiling execution).

As per claim 17, Simulink5 discloses generating debugging data with said debugger during the execution of said model; associating said debugging data with at least one of said

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components of said model; and visually indicating said associated data in said execution list view (see ch. 13-17-→13-25).

As per claim 18, Simulink5 discloses the number of iterations of at least one of said plurality of model components during a time step in said execution (e.g. pg. 13-19; pg. 4-42).

As per claims 19-20, Simulink5 discloses selecting a user-set speed parameter via a control associated with said model view; and executing said model in said model view based on the selected speed parameter (pg. 10-41; *parameters dialog box* -pg. 14-6) selecting a user-set speed parameter via a control associated with said execution list view; and executing said model in said execution list view based on the selected speed parameter (Note: setting up accelerator for simulation reads on parameter control associated with execution list – see claim 1).

As per claim 21, Simulink5 discloses receiving input from a user-controlled input device in said graphical modeling and execution environment, said input being interpreted by said graphical modeling and execution environment as a user-selected speed parameter; and executing said model in said execution list view based on the selected speed parameter (refer to claims 19-20 for analogous subject matter based on user input and control parameter at tool graphical level).

As per claims 22-23, Simulink5 discloses altering at least one of a connection between said model components and at least one of said model components; and adjusting at least one of said execution list view and said model view to indicate the effects of said altering (e.g. ch. 4: pg. 4-9 → 4-19; ch. 2: pg. 2-10→1-16; pg. 6-7→6-24; refer claims 19-20); wherein said altering step includes at least one of the adding and removing of at least one of model components and a connection between said model components (ch. 4; pg. 6-7→6-24).

As per claim 24, Simulink5 discloses displaying elements of the compiled state (e.g. *CompiledSampleTime* -pg. 2-28; *compiled model* - pg. 14-4,5) of said model in said model view.

As per claims 25-26, Simulink5 discloses displaying debug information from said debugger to a user in said model view as a tool tip (e.g. *tooltip* – pg. 3-6) over a component of said model in response to user input; wherein the displayed information indicates a signal value (pg. 6-29→6-31) of a signal line in said model view.

As per claims 27-28, Simulink5 discloses wherein the displayed information is made persistent in said model view (see pg. 4-76; 5-20; 10-23); wherein said displayed information is updated in response to the execution of said model (ch. 2: pg. 2-11→2-19; pg. 4-76).

As per claims 29-31, Simulink5 discloses displaying debug information from said debugger to a user in said execution list view as a tool tip in response to the movement of a pointing device (pg. 3-6; tooltip – pg. 14-16; *Navigating, masked* - pg. 9-9, 9-12; *clicking* - pg. 14-26 – Note: tooltip shown as a result of a cursor navigating move during analyzing state of simulation or modeling **reads on** debug information for each block of models being setup or executed as seen in pg. 14-37) in said execution list view over a component of said model associated with said debug information; wherein the displayed information is made persistent in said execution list view (Note: any data displayed for an instance of simulation is persistent for said list of execution instance); wherein said displayed information is updated in response to the execution of said model (refer to claim 28).

As per claim 32, Simulink5 discloses filtering the displayed execution list of methods in said execution list view so that only methods satisfying (ch. 9: pg. 9-2→9-7) a user-specified criteria are displayed.

As per claims 33-34, see (pg. 4-70, 79; pg. 14-25) for creating a record for each unique method invocation; and displaying data associated with said unique method invocations as they are called; anchoring said record to a block owner of (*clicking-* pg. 14-24→14-26; pg. 9-12; pg. 13-21,23) said unique method invocation in said model view (Note: one parent block reads on method invocation being unique).

As per claims 35-36, Simulink5 discloses displaying the calling of said unique method invocation with varying degrees of intensity representative of the frequency of the invocation (ch. 14: pg. 14-24→14-25); creating a unique method invocation for an execution exception event (*error message, error dialogue* -- ch. 2: pg. 2-23, 24; pg. 7-13,14; pg. 10-36).

As per claim 37, Simulink5 discloses wherein a user sets non-visible breakpoints (ch. 13: pg. 13-24 – Note: programmatic breakpoints being conditional to execution reads on non-visible) in at least one of said model view and said execution list view.

As per claim 38, Simulink5 discloses wherein at least one of a set of debugging data and a set of profiling data are displayed to a user in a separate view (*help browser* – pg. 14-23).

As per claim 39, Simulink5 discloses a medium for use in a graphical modeling and execution environment on an electronic device, said medium holding instructions executable on said electronic device for performing a method, said method comprising the steps of:

providing a model view and an execution list view an execution list depicting the execution order of methods called ... time step ... with a debugger;

indicating visually the state of the execution ... model view;

all of which steps having been addressed in claim 1 which recites the same corresponding limitations.

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As per claims 40, 41 and 42-43, refer to rejection of claims 2, 3, and 5, respectively.

As per claims 44-76, refer to claims 6-38 respectively for corresponding rejection.

As per claim 77, Simulink5 discloses in a graphical design environment, a system comprising:

a debugger, said debugger gathering debug information from the simulation of a model in said graphical design environment (ch. 2; ch. 13);

a model view, said model view displaying a plurality of components of a model and being interfaced with said debugger; and

an execution list view, said execution list view displaying an execution list (ch. 2: pg. 2-10→2-24; ch.13: pg. 13-17→13-19) depicting an execution order of methods called during the execution of a time step of said model, said execution list view state being visually represented (*Time Step, Math Function block, Sum block, Product block* - pg. 2-10,11; 2-19,20; ch. 5: pg. 5-16→5-17) on said model view, said execution list view being generated by said debugger.

As per claims 78-79, refer to claims 2-3 (refer to claim 1 for block order).

As per claim 80, refer to claims 12 and 14;

As per claims 81-83, refer to claims 13, 6, and 8 respectively for corresponding rejection.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A Vu whose telephone number is (272) 272-3735. The examiner can normally be reached on 8AM-4:30PM/Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571)272-3756.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-3735 (for non-official correspondence - please consult Examiner before using) or 571-273-8300 (for official correspondence) or redirected to customer service at 571-272-3609.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tuan A Vu
Patent Examiner,
Art Unit 2193
November 7, 2006